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ABSTRACT

Ten third-grade Puerto Rican children in New York City, representative of students with reading difficulties from low-income families, were taught emotionally charged or neutral words. Twenty words, 10 emotionally charged and 10 neutral, were taught to the subjects on 4 successive days. Pretesting on printed-word recognition was conducted before instruction. Five days after the last teaching session, the subjects were post-tested for printed-word recognition and recall. Results indicated that despite the fact that the emotionally-charged word performance at the outset of the study was significantly lower than the neutral word performance, the subjects made significantly greater gains in emotionally-charged words over gains for neutral words, and the final performance level for printed-word recognition for both groups of words was identical. The post-test also showed that a significantly greater number of emotionally-charged words was recalled when compared to the number of neutral words recalled. The author concluded that the content of reading materials and the methods for teaching them should be revised so that reading deals with events, ideas, and feelings which are emotionally significant to the child. Tables and references are included. (AW)

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Abstract

Recall and Printed-Word Recognition of Recently-Taught Emotionally Charged Words as Compared to Recently-Taught Neutral Words

This study is an experimental test of the hypothesis that "emotionally charged" words will result in greater learning as measured by tests of "recall" and "printed-word recognition" than words that are judged to be emotionally "neutral".

Ten third-grade subjects were pre-tested on "printed-word recognition" of ten words judged by two Clinical Psychologists to be "emotionally charged" and similarly pre-tested on ten words judged to be emotionally "neutral". After equal exposure to both "neutral" and "emotionally charged" words on four successive teaching days, subjects were post-tested for "recall" and "printed-word recognition" five days after the last teaching session.

The results strongly indicate for both the "recall" and "printed-word recognition" that there is a significantly greater retention of the "emotionally charged" words over the "neutral" words. Despite the fact that a significantly greater number of "neutral" words was recognized in print at the outset of the study, the final performance level for "printed-word recognition" for both the "emotionally charged" and "neutral" words is identical.

The major implication of the results obtained in this study is that the content of reading materials and the methods for teaching them must be revised so that reading deals with events, ideas, and feelings which are emotionally significant to the child. A personally relevant reading program will not only facilitate the task of learning to read, but will capture and explore the feelings and emotions of each child as well.

RE 003 979

Recall and Printed-Word Recognition of Recently-Taught Emotionally Charged Words as Compared to Recently-Taught Neutral Words

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The researcher's observations as a reading teacher indicate that efficiency of learning is influenced by the feelings or emotions of the learner toward the subject matter. Materials dealing with events, ideas or feelings which are personally significant and meaningful are more easily learned and retained than those which are meaningless and do not appeal to the student's own background of experiences. Based on this observation, a study was designed to experimentally test the hypothesis that "emotionally charged" words will result in greater learning as measured by tests of "recall" and "printed word recognition" than words that are judged to be emotionally "neutral".

One of the beginning reader's first learning tasks is to memorize and recognize on sight a prescribed number of vocabulary words chosen on the basis of their high frequency of occurrence in written and spoken usage in primary instructional materials. However, despite their frequency of occurrence and spoken familiarity, these words

RE 003 979

have been characterized by many educators as being the most difficult to recognize in print in that they are abstract in meaning, do not have significant configurational clues, are not personally relevant, and cannot be deciphered phonetically. Children who are successful in learning to read, master these words through structured, drill-oriented methods. However, for the child who does not learn to read at the rate considered appropriate for his grade level, these difficult and abstract neutral words are still taught and expected to be recognized on sight since they are usually considered to be the foundation upon which success in reading is built.

If, instead of the traditional neutral words, "emotionally charged" words were taught, that is, words dealing directly with the student's feelings and personal experiences, learning might be more rapid for the student with reading difficulties. Especially for this student, it might be practical to teach a beginning vocabulary of words with strong personal and emotional appeal rather than the neutral words, even though the latter are traditionally considered essential to the beginning reader's success.

This issue has been discussed in the reading literature. Crow and Crow (1965) and Michelson (1969) found that reading materials of high meaningfulness were usually learned and retained more easily and for a longer period of time than meaningless materials. Dukes and Bastian (1966) also studied meaningfulness in concrete and abstract words and found that concrete words were recalled slightly better than abstract words and that less frequently used words were recalled better than more frequently used words. The authors interpreted their findings in

terms of the low frequency abstract words being more "emotionally loaded" or "personally relevant" than the high frequency abstract words. Ashton-Warner (1966) discussed the significance of using personally relevant materials especially with the backward reader. The author observed that the reader selectively chose words with special meaning and emotional content for himself and rejected those which held little significance to him. Meaningless, impersonal words such as "up", "down", and "come" were usually rejected. Ashton-Warner noted that even though certain words can be learned by the average reader, this does not prove that these words should be included in every child's beginning reading vocabulary.

PROCEDURE

The subjects for this study are ten third-grade children of puerto-Rican extraction from a parochial elementary school in a low-income area in Brooklyn, New York. All were born in New York City, speak English as a first language, and except one child who attended first grade in a public school, all have attended this parochial school from the first grade. They range in age from 7.10 to 9.6 years. Six boys and four girls make up the sample with reading levels ranging from pre-primer to 1.1 as measured by an Informal Textbook Test. It is assumed that the sample is representative of students with reading difficulties from the low-income ethnic group from which they were chosen. However, because of the uniformity of the sample, the researcher acknowledges that the results may not be applicable to the general population.

Twenty words, ten "emotionally charged" and ten "neutral", were taught to the subjects with five new words, randomly selected from the

total twenty, introduced on each of four successive teaching days. Before each teaching session, the subjects were individually tested for prior recognition of the words in print. Five days after the last teaching session, each subject was individually tested for "recall" of any of the words taught. They were simply asked if they could remember any of the words. Following this, the original flashcards were shown and subjects were instructed to read all the words they could. The possibility of a teaching bias for the "emotionally charged" words was taken into consideration before the teaching was undertaken and every effort was made to minimize such a bias. The researcher took all precautions to keep her voice, emotional tone and instructions the same throughout the teaching period.

Techniques of Word Selection

A list of twenty-seven matched pairs of "neutral" and "emotionally charged" words was compiled by the researcher. Initial selection for neutral and emotional charge was made on the basis of the researcher's own observations of responses by third-grade children to similar words. Each pair was matched for initial alphabetic structure, word length, syllabic structure and word frequency as defined by the Thorndike-Lorge word count for written English and the Howes count for spoken English. From the twenty-seven matched pairs, a list of fifty-four randomly placed words was compiled. Two psychologists independently rated each word according to one of the following categories:

0 = neutral

1 = slightly emotionally charged

2 = emotionally charged

(See word list)

WORD LIST

RATINGS FOR EMOTIONALITY BY TWO PSYCHOLOGISTS

WORD	P_1	P_2	WORD	P_1	P_2
heavy	1	1	* know	0	0
* dead 3	2	2	* drop	0	1
escape	2	2	lie	2	2
big	1	0	enemy	2	2
move	0	1	* cry 3	2	2
love	2	1	same	0	0
* have	0	0	* both	0	0
happy	0	2	line	0	0
find	0	1	* kiss 3	2	2
enough	0	0	every	0	0
* hurt 3	2	2	sick	1	2
mean	2	2	marry	1	0
about	0	0	dark	2	2
month	0	0	* can	0	0
shot	2	2	* hate 3	2	2
what	0	0	play	2	0
* keep	0	1	alone	2	1
let	0	0	* kill 3	2	2
* fight 3	2	2	show	1	0
* blood 3	2	2	bad	1	2
might	0	0	* burn 3	2	2
* first	1	0	* steal 3	2	2
* short	1	1	* hold	1	0
done	0	0	wife	0	1
poor	2	2	money	1	1
body	1	2	back	0	1
fear	2	2	* bring	0	1

0 = neutral

1 = slightly emotionally charged

2 = emotionally charged

3 = most highly emotionally charged

* = selected for final list of twenty emotionally charged and neutral words

The number of words to be rated according to each category was not specified by the researcher. Following this initial rating, each psychologist was instructed to choose thirteen words from the total list which he felt to be the most highly "emotionally charged" and rate each word "3". From the thirteen words, ten were chosen by both psychologists as the most highly "emotionally charged". These words make up the emotionally charged list used in the study. Ten matching words which received the lowest ratings (0 or 1) were selected from the remaining list and make up the "neutral" word list for the study.

In an attempt to determine how children of the same age as were taught in the study would rate the final twenty words for emotionality, two third-graders were asked their feelings about the words. However, their answers were of little value since they were not able to verbalize any significant differences among the words on the list. Two fifth-grade children were also asked to rate each word according to the feeling it gave him, that is, good, bad, or neither good nor bad. Their ratings correspond very closely to those given by the two psychologists and give further supporting evidence that certain words are generally recognized as having emotional connotations.

Definitions

For the purposes of the study, certain key words and phrases will be defined as follows:

neutral words - having little or no emotional significance.

emotionally charged words - involving one's feelings or emotions and dealing specifically with anger, love, fear, sex, and/or aggression.

recently-taught words - taught no less than five days and no more than eight days before testing occurs.

recall - ability to remember and name recently-taught words of the study.

printed word recognition - ability to read from flashcards recently-taught words of the study.

personally relevant reading materials - dealing with ideas, events, and situations which are familiar to the student's own experiences and emotions.

student with reading difficulties - scoring two or more years below his grade level norms as measured by an Informal Textbook Test.

reading success - student's reading scores corresponding to the national norms appropriate to his grade level as measured by the Metropolitan Achievement Test.

sight vocabulary - phonetically irregular words occurring frequently in primary reading materials which must be memorized and identified rapidly in print.

gain score - obtained by subtracting from the post score for either "emotionally charged" or "neutral" words the original corresponding pre-score.

RESULTS

The results are organized in two parts; first, the results relating to the two major hypotheses, and second, auxiliary results that are relevant to the interpretation of the major results.

The first major hypothesis is that the average "gain score" found by obtaining the difference between pre- and post- "printed-word recognition" scores will be greater for "emotionally charged"

words than for "neutral" words. The obtained results give an average "emotionally charged" word gain of 6.1 words compared to an average "neutral" word gain of 3.5. This is an average difference of 2.6 words. Using the dependent or correlated scores t-test for an alpha or significance level of .05, two-tailed test, the obtained t = 5.77 at 9 d.f. The probability of obtaining this result due to chance alone is less than .001. These results are summarized in Table I below.

TABLE I

SUMMARY t-test DATA:
AVERAGE "EMOTIONALLY CHARGED" WORD GAIN ON THE PRE-POST "PRINTED-WORD RECOGNITION" MEASURES COMPARED TO THE CORRESPONDING "NEUTRAL" WORD GAIN

Mean "emotionally charged" word gain	6.1
Mean "neutral" word gain	3.5
Average difference	2.6
S^2 for difference scores	1.84
S for difference scores	1.35
$S_{\bar{D}}$ standard error of difference scores	.45
	t = 5.77*, $p < .001$

*Critical value of t- for a .05, two-tailed test at 9 d.f. = 2.26

The results in Table I indicate that there are statistically significant gains in "emotionally charged" "printed-word recognition" scores over those gains obtained for "neutral" "printed-word recognition" measures.

The second major hypothesis is that the recall at post-test for "emotionally charged" words will be significantly greater than the post-test recall for "neutral" words. The average number of "emotionally charged" words recalled is 5.7 compared to an average number of neutral words recalled of 3.5. Using a two-tailed dependent t-test with a .05 significance level, t = 7.00 at

9 d.f., $p < .001$. These results are summarized in Table II below.

TABLE II

SUMMARY t-test DATA:
THE AVERAGE NUMBER OF "EMOTIONALLY CHARGED" AND
"NEUTRAL" WORDS RECALLED AT POST-TEST

Mean "emotionally charged" words recalled	5.7
Mean "neutral" words recalled	3.5
Average difference	2.2
S^2 for difference scores	2.25
S for difference scores	1.50
$S_{\bar{D}}$ standard error of difference scores	.50
	$t = 7.00^*$, $p < .001$

*Critical value of t- for a .05, two-tailed test at 9 d.f. = 2.26

The results in Table II indicate that there is a statistically significant greater number of "emotionally charged" words recalled compared to the number of "neutral" words recalled at post-test.

An auxiliary assumption in the experimental design is that subjects will learn both "emotionally charged" and "neutral" words as a result of the teaching. This assumption is validated by the statistically significant mean increase for "emotionally charged" words from a pre-teaching average of 1.5 to a post-teaching average of 7.6 ($t = 10.33$ at 9 d.f., $p < .001$, dependent t-test, alpha = .05, two-tailed).

The "neutral" "printed-word recognition" average rises from a pre-teaching level of 4.1 to a post teaching level of 7.6 ($t = 10.29$ at 9 d.f., $p < .001$, dependent t-test, alpha = .05, two-tailed). Both these results indicate a significant gain in learning for "emotionally charged" and "neutral" words.

The final auxiliary result shows that the subjects started the experiment with a lower level of performance on the pre- "emotionally charged" "printed-word recognition" scores (Mean = 1.5) than on the pre- "neutral" "printed-word recognition" scores (Mean = 4.1). The probability of this difference is less than .001 (dependent t = 6.05, $p < .001$, two-tailed test, alpha = .05). These results indicate that the "emotionally charged" word performance at the outset of the study is significantly lower than the "neutral" word performance. The importance of this difference will be elaborated upon in the discussion section.

DISCUSSION

The major results of tests for both "recall" and "printed-word recognition" clearly support the hypothesis that learning is more potent for "emotionally charged" words than for "neutral" words. However, qualifications are important to the interpretation of these results.

One such qualification is that the means of the pre-test scores across all subjects for "printed-word recognition" indicate less exposure to "emotionally charged" words (Mean = 1.5) than to "neutral" words (Mean = 4.1). That is, a significantly greater number of "neutral" words was recognized in print at the outset of the study than was "emotionally charged" words. In spite of this, there is greater learning for "emotionally charged" words as compared to words judged to be emotionally "neutral". Also, statistically significant lower "emotionally charged" word performance at the outset of the study indicates there is more

room for gains than for the"neutral" words. However, the final performance level for both "emotionally charged" words and "neutral" words is identical (Mean = 7.6), and on neither type of word do the subjects approach the maximum possible performance level of a Mean of 10. Therefore, it is the researcher's opinion that neither the "emotionally charged" nor "neutral" word performance level have been limited since the maximum performance Mean of 10 was not closely approached. The strong evidence in support of the major hypothesis, therefore, remains valid.

A second item worthy of note is that the responses of several subjects when post-tested for "printed-word recognition" were similar to the original words in content but still had to be scored as errors of recognition. Examples of this type of error are responses such as "fire" for "burn" and "kill" for "dead". Subjects seemed to incorporate the meaning of the "emotionally charged" words more strongly than the spelling or sound of the words. In the case of "neutral" words, incorrect responses were typified by identifying "know" as "now" and "short" as "shot". Subjects seemed to focus on spelling and sound similarities rather than meaning similarities as was true of the "emotionally charged" words. Considering the apparent strength of the content association of the "emotionally charged" words, it is the researcher's opinion that the significance of the major hypothesis may have been strengthened even further if the "emotionally charged" words taught had been derived from the subject's own personally relevant vocabulary. Such words may be less easily

mistaken than those chosen as emotionally significant by the researcher. However, the need for word control accomplished through the selection procedures described earlier seems to the researcher to outweigh the possibility of additional gains which might have been achieved through word selection by the subjects themselves.

Another noteworthy factor which may support the major hypothesis is that the "emotionally charged" words occur considerably less frequently in spoken English than do the "neutral" words, as measured by Howes' spoken word frequency count. Still, there was significantly better "recall" and "printed-word recognition" for the "emotionally charged" words. It is the researcher's opinion that the strength of the content of the "emotionally charged" words results in greater learning than the strength of the frequency of the "neutral" words. Yet, the vocabulary which beginning readers are required to learn in the current curriculum is made up largely of high frequency "neutral" words which this study indicates are the most difficult to learn. Thus, the major implication of the results obtained in this study is that the content of reading materials and the methods for teaching them must be revised so that reading deals with events, ideas, and feelings which are personally relevant to the child. Should this be impractical because of class size and/or teacher shortage, this study indicates that there is a category of words which are generally judged to be emotionally significant and are generally more easily learned than emotionally "neutral" material.

One of the problems of the current reading curriculum may be

the emotional irrelevance of the reading materials. Assuming this is true, one of the major tasks of the reading teacher may be to revise the reading program to fit the child's emotional investments particularly when he is first learning to read. This may involve use of words and exploration of feelings traditionally considered taboo for the classroom. An emotionless, irrelevant vocabulary made up of words such as "have", "can", and "bring" does not appeal to a child's feelings. Rather than pile failure upon failure through repeated exposure to "neutral" material, the child who is not reading at a rate consistent with his grade level should be encouraged to expose his feelings about himself, his experiences and his environment.

Competition, rules and discipline combine to make the school atmosphere unsafe and anxiety-laden, particularly for the child who feels only failure and frustration there. It is the researcher's opinion that by avoiding the reality of this situation through the use of "safe" materials which ignore the emotions a child feels, the child is given further reason to believe his failure is too horrible to mention and doesn't happen to other children. Materials with emotionally relevant content would help legitimize the feelings of the child whose emotions have become such an integral part of the school situation that they may be blocking learning itself.

A change in the reading curriculum such as this study supports may not be realized without additional research in the area of emotionality and its effect on learning. Possible research which may lend further support to the major hypothesis of this study could be conducted to see if on tests of "recall" and "printed-word recognition", "emotionally charged" word retention would be

superior if a longer time period were allowed to elapse between teaching and testing. That is, it would be interesting to see if test results would be similar if testing were conducted two, three, or even four weeks after teaching took place since length of time of retention is an important variable in meaningful learning.

In addition, a study could be carried out with average and/or superior readers to see if the obtained relationship between "recall" and "printed-word recognition" of "emotionally charged" words and "neutral" words holds true for these children as well as children with reading difficulties. Variations in the study might involve the use of "emotionally charged" stories, poems or plays rather than words.

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